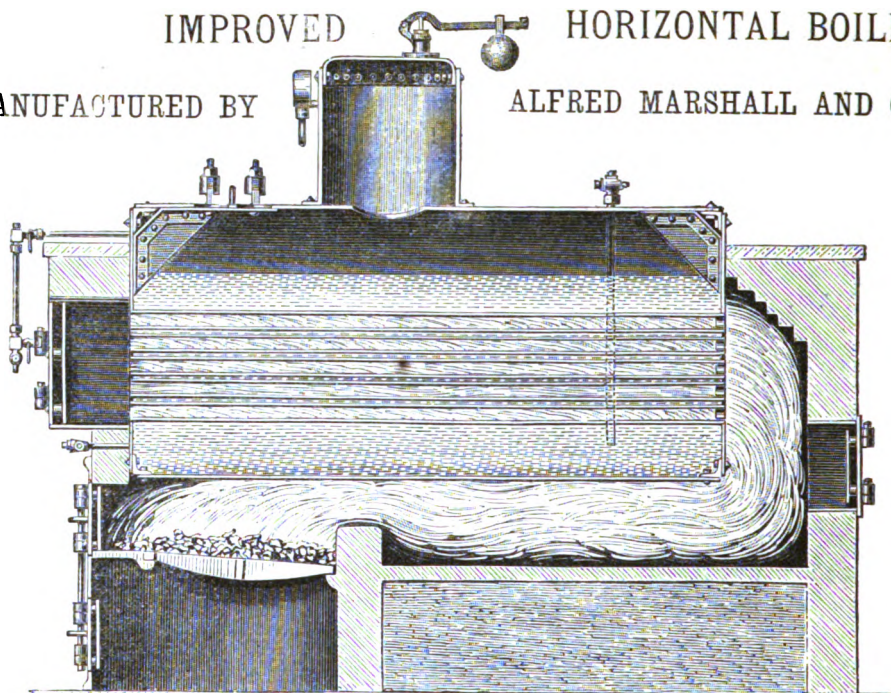
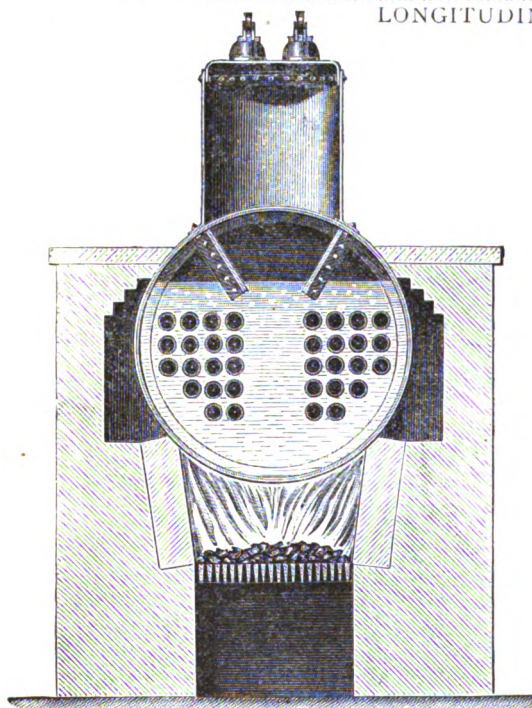


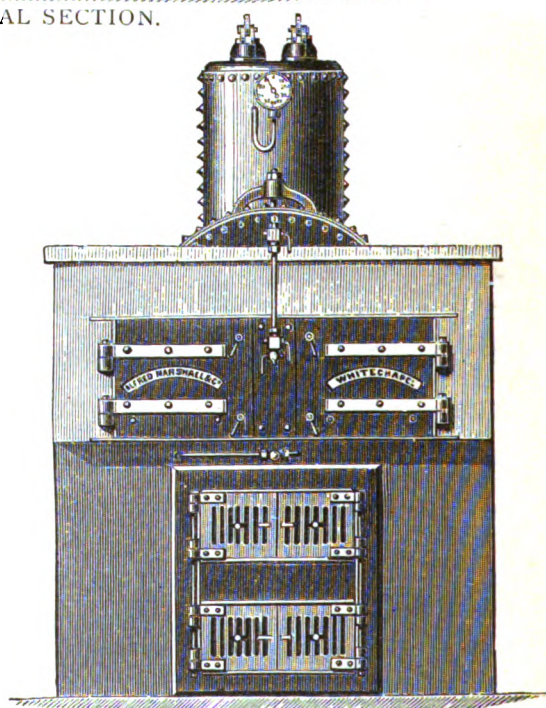
IMPROVED HORIZONTAL BOILERS.  
MANUFACTURED BY ALFRED MARSHALL AND CO.



LONGITUDINAL SECTION.



CROSS SECTION.



FRONT ELEVATION.

ALFRED MARSHALL AND CO.,  
ENGINEERS, BOILER MAKERS, AND MANUFACTURERS OF CAST IRON AND SMITHS' WORK,  
STEAM BOILER WORKS, AND PERSEVERANCE IRON-WORKS,  
HENEAGE STREET, BRICK LANE, WHITECHAPEL, LONDON, E.

# IMPROVED HORIZONTAL BOILERS,

MANUFACTURED BY

**ALFRED MARSHALL AND CO.**

The rapid increase in our Manufacture of Vertical Multitubular Boilers has induced us to provide one of horizontal form. The particulars given are formed on an experience of some twelve years past, and are fully corroborated by all those who have them in use. The leading features are Great Power, Economy of Space, Economy in Fuel, Simplicity of Construction, and Durability in use.

For burning wood or any other kind of bulky material, coal, coke, or trade refuse, they are equally valuable. They occupy about three-fourths of the space of Cornish Boilers, with an advantage of 40 per cent. in the evaporating power. From the cross section it will be seen that three-fourths of the exterior surface is exposed to the flames, thus all the heat is necessarily utilized before passing to the chimney.

Every part of the interior can be readily and easily cleaned by a man or boy, while the exterior for the sweeping of tubes and flues from soot is equally accessible; the latter operation can be done while the boiler is working, if desired.

The objection of many people to Multitubular Boilers, because the tubes pass through the steam, is also met by the total immersion of these tubes in water. The grate surface is so small (one-half of that in Cornish Boilers) that much fuel is necessarily saved by that alone.

In case of repairs all the working parts can be readily got at, and one tube could be taken out of the group without disturbing any of the others. They are very compact for exporting, and well adapted for use abroad, as they require very little brickwork and small chimneys.

These combined advantages enable us to recommend them for general use, especially above 8 horse-power (for less than that we recommend our Improved Vertical Boilers). Every Boiler is made without stays, and fully tested by hydraulic pressure before leaving our Works; the strength of the plates employed being sufficient to stand the pressure guaranteed.

N.B.—Boilers can be made to fit any available space; particulars on application to the Manufacturers.

## **Patent Smoke-Consuming Apparatus, Patent Boiler Preparation, &c.**

HEATING BY STEAM AND WATER ON THE MOST APPROVED PRINCIPLES.

**EVERY DESCRIPTION OF BOILER (NEW AND SECOND HAND) ON SALE OR HIRE.**

*\*\* Special workmen are kept for Repairing Boilers of all kinds, under personal superintendence.*

BOILERS CLEANED OUT AND TESTED BY CONTRACT.

**ALFRED MARSHALL AND CO.,**

ENGINEERS, BOILER MAKERS, AND MANUFACTURERS OF CAST IRON AND SMITHS' WORK,  
STEAM BOILER WORKS, AND PERSEVERANCE IRON-WORKS,  
HENEAGE STREET, BRICK LANE, WHITECHAPEL. LONDON. E.

# IMPROVED VERTICAL BOILERS.

MANUFACTURED BY  
ALFRED MARSHALL AND CO.



The great advantages afforded in these Boilers, to all employers of steam power are now established beyond doubt, their use extending most rapidly. The very large number we have already made (both for the home and export trade) assist the completeness of our manufacture, suggesting improvements only discovered by practical experience of their working.

Every part is constructed with the utmost regard to strength and durability; materials of the best kind only are used; and workmen being specially kept for this branch of our trade, leave nothing to be desired for an effective and substantial manufacture.

They are in extensive use throughout the world, our turn-out being about 500 per annum.

We desire your special attention to the following practical points in their favour:—Great economy of fuel in working; rapidity of making steam; the great ease with which the steam is controlled, as to decrease or increase (a great advantage where power is only required at intervals); and the superheating of steam in *perfect safety*. We further desire you to notice the small space they occupy; the ease with which they are conveyed from one place to another; the advantage they possess over all other Boilers in passing them through doorways, passages, windows, &c.

No brickwork is necessary for their erection (and it is well known that in Cornish or cylindrical Boilers the brickwork, setting, and chimney shaft are all extras, amounting generally to as much, and frequently more than the cost of the Boiler itself). This, therefore, is an important and special consideration to every employer of steam power.

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STEAM BOILER WORKS, AND PERSEVERANCE IRON-WORKS,  
HENEAGE STREET, BRICK LANE, WHITECHAPEL, LONDON, E.

## MARSHALL'S IMPROVED VERTICAL BOILERS.

It is well known to thorough engineers that a constant circulation of water is the best plan to remove the accumulation of sediment. It is at once perceptible that this recommendation is fully realized in a Vertical Boiler with tubes, and that the placing of them in various directions causes a constant and quick circulation of the water, thereby *preventing* the adhesion of the sediment, and increases the rapidity with which the steam is generated. Again, we request you to notice that in case of repairs being required, they are as easily displaced as erected, every part being readily accessible for that purpose.

These combined advantages warrant us in putting them forth as the best description of Boiler for any purpose to which steam power is applied.

Every care is taken to ensure a thorough good and substantial article, which we assure by guaranteeing, and twice testing them to 150 lb. on the square inch, before leaving our Works.

THE "O. F.," OR ORDINARY FITTINGS, comprise manhole, mudhole, covers, and cross-bars, fire door and frame, bearing and fire bars, wrought-iron stand, and smoke box. (Chimneys are extra, according to length and shape required.)

THE "O. M.," OR ORDINARY MOUNTINGS, comprise water gauge and glass, steam gauge and syphon, steam cock, feed cock, blow-off cock (and spanners), safety valve and weight, all of the best make and finish.

PRICES AND TERMS will be sent on application, either for Boilers, Boilers and Mountings, or for the whole, fixed and started on the premises, in any part of the United Kingdom.

N.B.—Boilers can be made to fit any available space; particulars on application to the Manufacturers.

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### **Patent Smoke-Consuming Apparatus, Patent Boiler Preparation, &c.**

HEATING BY STEAM AND WATER ON THE MOST APPROVED PRINCIPLES.

**A STOCK OF ALL SIZE BOILERS, NEW AND SECOND HAND, IS KEPT FOR  
SALE OR HIRE.**

*\*\* Special workmen are kept for Repairing Boilers of all kinds, under personal superintendence.*

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BOILERS CLEANED OUT AND TESTED BY CONTRACT.

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